



U.S. Department
of Transportation
**Federal Aviation
Administration**

Aviation Safety

800 Independence Ave
Washington, DC 20591

September 8, 2021

Exemption No. 17783C
Regulatory Docket No. FAA-2017-0604

Ms. Jennifer Andrews
Bell Textron Inc.
P.O. Box 482
Fort Worth, TX 76101

Dear Ms. Andrews:

This letter is to inform you that the Federal Aviation Administration (FAA) has granted your petition to extend and amend Exemption No. 17783B. This letter transmits the FAA's decision, explains the FAA's basis, and provides the revised conditions and limitations of the exemption, including the date the exemption ends.

The Basis for the FAA's Decision

By letter dated June 1, 2021, you petitioned the FAA on behalf of Bell Textron Inc. (Bell) for an extension and amendment to Exemption No. 17783B. That exemption from §§ 61.113(a), 61.113(b), 91.121, 91.151(a), and 91.119(c) of Title 14, Code of Federal Regulations (14 CFR) allows Bell to conduct research and development, crew training and market survey operations with the AAPPT family of unmanned aircraft systems (UAS).

The petitioner was contacted on July 7, 2021 to provide more information on the anti-collision lighting systems in use by the UAS. The petitioner clarified the lighting systems involved during this July 7, 2021 phone conversation.

In your petition, you indicate that there has been no change in the conditions and reasons relative to public interest and safety that were the basis for granting the original exemption.

The FAA's Decision

The FAA has determined that good cause exists for not publishing a summary of the petition in the *Federal Register*, because the requested extension and amendment to the exemption would not set a precedent, and any delay in acting on this petition would be detrimental to Bell.

Bell's petition for amendment requests modifications to conditions in Exemption 17783B. Specifically, Bell requested changes to Condition and Limitation No. 15 to conduct night operational testing when equipped with an aircraft lighting system described in the petitioner's operating documents; to Condition and Limitation No. 18 to conduct integration testing of an

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inertial navigation system as an alternate to global positioning system (GPS); and to Condition and Limitation No. 25, which requires flights over private or controlled access property, to eliminate the requirement to seek permission from property owners/controllers or authorized representatives prior to over flight.

With respect to equipage for night operations, the FAA has issued a grant of exemption in circumstances similar in all material respects to those presented by this petition. In Grant of Exemption No. 16341, Industrial Skyworks, the FAA developed processes and procedures to ensure the safety of aircraft operations conducted at night including the equipage and usage of anti-collision lights illuminated and visible for at least 3 statute miles that has a flash rate sufficient to avoid a collision. The FAA reviewed the aircraft lighting system described in the operating documents and found that it is satisfactory for this operation. Therefore, the FAA has amended Condition and Limitation No. 15 accordingly.

Bell wishes to test their inertial navigation systems (INS). The system can navigate independent of GPS using motion sensors and rotational sensors to calculate the needed position, orientation and velocity required for navigation. The FAA has found there are a number of reliable ways of determining the speed, attitude, altitude and direction of the aircraft. Since this a visual line of sight operation and the pilot could judge these factors for him/herself, allowing the aircraft to land in place (rather than in a predetermined location) in the event the UAS is unable to accurately determine its location sufficiently is in the interest of safety. Therefore, the FAA has amended Condition and Limitation No. 18 accordingly.

With respect to Condition and Limitation No. 25, Bell wishes to eliminate the requirement to seek permission from property owners/controllers or authorized representatives prior to over flight. The FAA finds this modification has no impact to ground risk as flight operations maintain 500 feet from nonparticipating persons, vessels, vehicles and structures as required by 14 CFR § 91.119(c), except as noted in condition 24 (a) or (b) (where shelters are in place to protect people on the ground). Therefore, the FAA has amended Condition and Limitation No. 25 accordingly.

The FAA has determined that the justification for the issuance of Exemption No. 17783B remains valid with respect to this exemption and is in the public interest. Therefore, under the authority provided by 49 U.S.C. 106(f), 40113, 44701 and 44807, which the FAA Administrator has delegated to me, I hereby grant Bell Textron Inc. an exemption from 14 CFR 61.113(a) and (b), 91.121, 91.151(a), and 91.119(c) to the extent necessary to allow Bell to conduct research and development, crew training and market survey operations with the AAPPT family of UAS aircraft subject to the following amended conditions and limitations, as well as those associated with the related SAC-ECs and COAs.

Conditions and Limitations

1. Operations authorized by this grant of exemption are limited to aircraft operated under a Special Airworthiness Certificate-Experimental Category (SAC-EC) for Research and Development, Crew Training and Market Survey. Proposed operations by any other aircraft require a new petition or a petition to amend this exemption.

2. The unmanned aircraft (UA) may not be operated at airspeeds greater than the maximum UA operating airspeed recommended by the aircraft manufacturer, the SAC-EC or the Certificate of Waiver or Authorization (COA).
3. All operations must be conducted in accordance with an FAA Air Traffic Organization (ATO) issued COA and SAC-EC, associated with this exemption.
4. The unmanned aircraft must not operate at an altitude in excess of the altitude established in the COA provided by the FAA's ATO or in the SAC-EC. Altitude must be reported in feet AGL.
5. In the event the UA must be operated within visual line of sight (VLOS), it must be operated within visual line of sight of the remote pilot in command (RPIC) or visual observer (VO) at all times. This requires the RPIC and VO to be able to use human vision unaided by any device other than corrective lenses, as specified on the RPIC's FAA-issued airman medical certificate.
6. Whenever a VO is required, the RPIC must ensure that the VO can perform the duties required of the VO. The VO and RPIC must be able to communicate verbally at all times. Electronic messaging or texting is not permitted during flight operations.
7. The RPIC must be designated before the flight and may not transfer his or her designation for the duration of the flight unless otherwise permitted in the SAC-EC or in the COA.
8. This exemption, the SAC-EC, COA, and all documents needed to operate the UAS and conduct its operations are hereinafter referred to as the operating documents. The operating documents must be accessible during UAS operations and made available to the FAA Administrator (Administrator) upon request. If a discrepancy exists between the conditions and limitations in this exemption and the procedures outlined in the petitioner-produced operating documents, the conditions and limitations herein, within the SAC-EC, or within the COA take precedence and must be followed. Otherwise, the operator must follow the procedures as outlined in its operating and manufacturer manuals. The operator may update or revise its operating documents. It is the operator's responsibility to track such revisions and present updated and revised documents to the Administrator or any law enforcement official upon request. The operator must also present updated and revised documents if it petitions for extension or amendment to this grant of exemption. If any update or revision would affect the basis upon which the FAA granted this exemption, then the operator must petition for an amendment to its grant of exemption.
9. Any UAS that has undergone maintenance or alterations that affect the UAS operation or flight characteristics, e.g., replacement of a flight critical component, must undergo a functional test flight prior to conducting further operations under this exemption. Functional test flights may only be conducted by a RPIC with a VO and must remain at least 500 feet from other people. The functional test flight must be conducted in such manner so as to not pose an undue hazard to persons and property. The operator is responsible for maintaining and inspecting the UAS. Maintenance, inspection, alterations, and status of

replacement/overhaul component parts must be noted in the aircraft records, including total time in service, description of work accomplished, and the signature of the authorized person returning the UAS to service.

10. Prior to each flight, the RPIC must conduct a pre-flight inspection and determine the UAS is in a condition for safe flight. The pre-flight inspection must account for all potential discrepancies, e.g., inoperable components, items, or equipment. If the inspection reveals a condition that affects the safe operation of the UAS, the aircraft is prohibited from operating until the necessary maintenance has been performed, and the UAS is found to be in a condition for safe flight.
11. The operator must follow the UAS manufacturer's maintenance, overhaul, replacement, inspection, and life limit requirements for the aircraft and aircraft components.
12. Each UAS operated under this exemption must comply with all manufacturer safety bulletins.
13. The RPIC must hold either an airline transport, commercial, or private pilot certificate. The RPIC must also hold a current FAA second-class airman medical certificate, per the operating limitations for the aircraft being flown. The RPIC must also meet the flight review requirements specified in 14 CFR § 61.56 in an aircraft in which the RPIC is rated on his or her pilot certificate.
14. The operator may not permit any RPIC to operate unless the RPIC demonstrates the ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption, including evasive and emergency maneuvers and maintaining appropriate distances from persons, vessels, vehicles, and structures. RPIC qualification flight hours and currency must be logged in a manner consistent with 14 CFR § 61.51(b). Flights for the purposes of training the operator's RPICs and VOs (training, proficiency, and experience-building) and determining the RPIC's ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption are permitted under the terms of this exemption. However, training operations may only be conducted during dedicated training sessions. During training, proficiency, and experience-building flights, all persons not essential for flight operations are considered nonparticipants, and the RPIC must operate the UA with appropriate distance from nonparticipants in accordance with 14 CFR § 91.119.
15. UAS operations may be conducted during night, as defined in 14 CFR § 1.1 if the UA is equipped with the optional aircraft lighting system described in the operating documents. All operations must be conducted under visual meteorological conditions (VMC). Flights under special visual flight rules (SVFR) are not authorized. Except for flight in active restricted or warning areas designated for aviation use, for operations at night, the aircraft must have lighted anti-collision lighting visible for at least 3 statute miles that has a flash rate sufficient to avoid a collision.

16. The UA may not operate within 5 nautical miles of an airport reference point (ARP) as denoted in the current FAA Chart Supplement or, for airports not denoted with an ARP, the center of the airport symbol as denoted on the current FAA-published aeronautical chart, unless a letter of agreement with that airport's management is obtained or otherwise permitted by a COA issued to the exemption holder. The letter of agreement with the airport management must be made available to the Administrator or any law enforcement official upon request.
17. The UA may not be operated less than 500 feet below or less than 2,000 feet horizontally from a cloud or when visibility is less than 3 statute miles from the RPIC.
18. If the UAS loses communications with the Ground Control Station, the UA must return to a predetermined location within the controlled-access property. If the UAS is unable to accurately determine its location sufficiently to ensure it remains within the lateral boundaries of the controlled access property, it must promptly land within the controlled access property.
19. The RPIC must abort the flight in the event of unpredicted obstacles or emergencies.
20. The RPIC is prohibited from beginning a flight unless (considering wind and forecast weather conditions) there is enough available power for the UA to conduct the intended operation and to operate after that for at least five minutes or with the reserve power recommended by the manufacturer if greater.
21. All aircraft operated in accordance with this exemption must be identified by serial number, registered in accordance with 14 CFR part 47, and have identification (N-Number) markings in accordance with 14 CFR part 45, Subpart C. Markings must be as large as practicable.
22. Documents used by the operator to ensure the safe operation and flight of the UAS and any documents required under 14 CFR §§ 91.9 and 91.203 must be available to the RPIC at the Ground Control Station of the UAS any time the aircraft is operating. These documents must be made available to the Administrator or any law enforcement official upon request.
23. The UA must remain clear and give way to all manned aviation operations and activities at all times.
24. All flight operations must be conducted at least 500 feet from all nonparticipating persons, vessels, vehicles, and structures unless:
 - a. Barriers or structures are present that sufficiently protect nonparticipating persons from the UA and/or debris in the event of an accident. The operator must ensure that nonparticipating persons remain under such protection. If a situation arises where nonparticipating persons leave such protection and are within 500 feet of the UA, flight operations must cease immediately in a manner ensuring the safety of nonparticipating persons; and

- b. The owner/controller of any vessels, vehicles, or structures has granted permission for operating closer to those objects, and the RPIC has made a safety assessment of the risk of operating closer to those objects and determined that it does not present an undue hazard. The RPIC, VO, operator trainees, or other essential individuals are not considered nonparticipating persons under this exemption.

25. All operations must be conducted over controlled-access property.

26. Any incident, accident, or flight operation that transgresses the lateral or vertical boundaries defined in this COA must be reported to the FAA via email at: 9-AJV-115-UASOrganization@faa.gov within 24 hours. Accidents must be reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: www.nts.gov.

28. This exemption is not valid for operations outside of the United States.

Failure to comply with any of the above conditions and limitations may result in the immediate suspension or rescission of this exemption.

The Effect of the FAA's Decision

The FAA's decision amends Exemption No. 17783B to 17783C and extends the termination date to September 30, 2023, unless sooner superseded or rescinded. This amendment allows operations at night when equipped with aircraft lighting; use of an inertial navigation system as an alternative to global positioning system (GPS); and maintains that flights must be conducted over private or controlled access property, but eliminates the requirement to seek permission from property owners/controllers or authorized representatives prior to overflight.

To request an extension or amendment to this exemption, please submit your request by using the Regulatory Docket No. FAA-2017-0604 (<http://www.regulations.gov>). In addition, you should submit your request for extension or amendment no later than 120 days prior to the expiration listed above, or the date you need the amendment, respectively.

Any extension or amendment request must meet the requirements of 14 CFR § 11.81.

Sincerely,

/s/

Robert C. Carty
Deputy Executive Director, Flight Standards Service